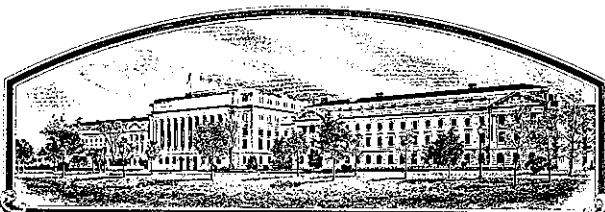


No.

8200127



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Jacob Hartz Seed Company, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS PROVIDED BY THE OWNER OF THE RIGHTS. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Hartz 930'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this *28th* day of October in the year of our Lord one thousand nine hundred and eighty-two.

Attest:

Kenneth F. ...
Acting
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture



UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

| | | | | | |
|---|--|---|--|---|----------------------------|
| 1a. TEMPORARY DESIGNATION OF VARIETY H78-B30 | | 1b. VARIETY NAME Hartz 930 | | FOR OFFICIAL USE ONLY PV NUMBER 8200127 | |
| 2. KIND NAME Soybean | | 3. GENUS AND SPECIES NAME Glycine Max | | FILING DATE 5/24/82 | TIME 1:00 P.M. |
| 4. FAMILY NAME (BOTANICAL) Leguminosae | | 5. DATE OF DETERMINATION 1979 | | FEE RECEIVED \$ 500.00 \$ 250.00 | DATE 5/24/82 7/30/82 |
| 6. NAME OF APPLICANT(S) Jacob Hartz Seed Co., Inc. | | 7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P.O. Box 946, N. Park Avenue Stuttgart, Arkansas 72160 | | 8. TELEPHONE AREA CODE AND NUMBER 501/673-8565 | |
| 9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Jacob Hartz Seed Company, Inc. | | 10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Arkansas 1948 | | 11. DATE OF INCORPORATION 1948 | |
| 12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Jacob Hartz Seed Company, Inc. P. O. Box 946 Stuttgart, AR 72160 | | | | | |

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

| | | | |
|---|---|---|--|
| 14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) | | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO | |
| 14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? | 14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? | | |
| <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO | <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED | | |
| 15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (If "Yes," give name of countries and dates.) | | | |
| 15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (If "Yes," give name of countries and dates.) | | | |

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

May 21, 1982
(DATE)

May 21, 1982
(DATE)

Curtis Williams Plant Breeder
(SIGNATURE OF APPLICANT)

Jake Hartz J. Pres.
(SIGNATURE OF APPLICANT)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.



EXHIBIT A

ORIGIN AND BREEDING HISTORY OF THE VARIETY

"Hartz 930 ", tested as H78-B30, originated from one F_5 plant from the cross D71-4538 x Mack. D71-4538 is a small seeded line developed by Dr. E.E. Hartwig of Stoneville, Mississippi from the cross D65-3065 x D65-2553. D65-3065 is an F_5 selection of HILL(4) x PI171.442. D65-2553 is a selection from PI196.177 x (2)HILL. PI171.442 was used to add phytophthora rot resistance and PI196.177 is a small seed type introduced from Korea. Hybridization, selection and testing of H78-B30 were by Jacob Hartz Seed Company, Inc. The original cross was made in 1975 and the F_1 and F_2 generations were grown at Stuttgart. One three-seeded pod was picked from each F_2 plant and advanced in Belize, C.A., by modified single seed descent, during the winter of 1976-77. The F_4 bulk population was grown at Stuttgart the summer of 1977. Single plants were selected and seeds planted in progeny rows at Stuttgart in 1978. Since the plant rows were segregating for shattering, single non-shattering plants were selected approximately six weeks after maturity. These non-shattering F_5 generation plants were threshed individually. The seed was advanced in Belize, C.A. as a plant row during the winter of 1978-79. Each plant row was threshed in bulk in Belize. Yield and evaluation plots were grown at Stuttgart in 1979, 1980 and 1981. H78-B30 bred true for the major phenotypic characters in 1979. Seedlings were screened for resistance to phytophthora root rot, races 1, 3, 4 and 7, in the greenhouse at Stuttgart and for foliar diseases under field conditions at Stuttgart. Screening for resistance to race 3 of the soybean cyst nematode was done in the greenhouse and field at Stuttgart.

EXHIBIT A (Continued)

Page 2

Evidence of stability - "Hartz 930 " is stable for flower color, phytophthora rot resistance, bacterial pustule resistance, cyst nematode race 3 resistance, pubescence color, maturity date, and hilum color.

Kinds of variants - Hilum color will range from light buff to dark buff and seed size will vary depending upon environment. No variants have been observed.

EXHIBIT B

NOVELTY STATEMENT

^{'HARTZ 930'} 145

<H78-B30> is a high yielding, small seeded Maturity Group VI cultivar, with resistance to bacterial pustule, frog-eye leafspot, races 1, 3, 4 and 7 of phytophthora root rot and race 3 of the soybean cyst nematode. It is susceptible to the root-knot nematode Meloidogyne incognita.

^{'HARTZ 930'}

<H78-B30> has white flowers, gray pubescence, tan pod wall, and small (9-11 g/100), spherical, flattened yellow seed with buff hila. Plants can be distinguished from other Group VI cultivars by various genetic and disease resistance traits; from Davis by reaction to phytophthora root rot and cyst nematode; from Pickett 71 by flower color and hilum color; from Lee 74 and Centennial by flower color and pubescence color; from Hood 75 by flower color; and, from Hartz 936X by maturity and cyst nematode resistance.

^{'HARTZ 930'}

Most similar variety - <H78-B30> is most similar to Hartz 936X soybeans. However, ^{'HARTZ 930'}<H78-B30> is about seven days earlier in maturity than Hartz 936X and possesses resistance to race 3 of the soybean cyst nematode, while Hartz 936X does not.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (GLYCINE MAX)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Jacob Hartz Seed Co., Inc.

ADDRESS (Street and No., or R.F.D. No.; City, State, and ZIP Code)

P. O. Box 946, N. Park Avenue
Stuttgart, Arkansas 72160

FOR OFFICIAL USE ONLY

PVPO NUMBER 8200127

VARIETY NAME OR TEMPORARY DESIGNATION

HARTZ 930 R/S

Place the appropriate number that describes the varietal character of this variety in the boxes below.

1. SEED SHAPE:

☐ 2 1 = SPHERICAL 2 = SPHERICAL FLATTENED 3 = ELONGATE 4 = OTHER (Specify)

2. SEED COAT COLOR:

☐ 1 1 = YELLOW 2 = GREEN 3 = BROWN 4 = BLACK
5 = OTHER (Specify)

SHADE:

☐ 2 1 = LIGHT 2 = MEDIUM 3 = DARK

3. SEED COAT LUSTER:

☐ 1 1 = DULL 2 = SHINY

4. SEED SIZE

☐ 10 GRAMS PER 100 SEEDS

5. HILUM COLOR:

☐ 1 1 = BUFF 2 = YELLOW 3 = BROWN 4 = GRAY 5 = IMPERFECT BLACK
6 = BLACK 7 = OTHER (Specify)

SHADE:

☐ 2 1 = LIGHT 2 = MEDIUM 3 = DARK

6. COTYLEDON COLOR:

☐ 1 1 = YELLOW 2 = GREEN

7. LEAFLET SIZE (See Reverse):

☐ 2 1 = SMALL 2 = MEDIUM 3 = LARGE

8. LEAFLET SHAPE:

☐ 1 1 = OVATE 2 = OBLONG 3 = LANCEOLATE 4 = ELLIPTICAL 5 = OTHER (Specify)

9. LEAF COLOR (See reverse):

☐ 2 1 = LIGHT GREEN 2 = MEDIUM GREEN 3 = DARK GREEN

10. FLOWER COLOR:

☐ 1 1 = WHITE 2 = PURPLE
3 = OTHER (Specify)

11. POD COLOR:

☐ 1 1 = TAN 2 = BROWN 3 = BLACK

12. POD SET:

☐ 2 1 = SCATTERED 2 = CONCENTRATED

13. PLANT PUBESCENCE COLOR:

☐ 1 1 = GRAY 2 = BROWN 3 = OTHER (Specify)

SHADE:

☐ 1 1 = LIGHT 2 = MEDIUM 3 = DARK

14. PLANT TYPES (See Reverse):

☐ 3 1 = SLENDER 2 = BUSHY 3 = INTERMEDIATE

15. PLANT HABIT:

☐ 1 1 = DETERMINATE 2 = INDETERMINATE
3 = OTHER (Specify)

16. HYPOCOTYL COLOR:

☐ 1 1 = GREEN 2 = PURPLE

17. SEED PROTEIN:

☐ 1 = A 2 = B

18. NUMBER OF DAYS TO FLOWERING

(Place a zero in first box (e.g. ☐ 0 ☐ 9) when days are 9 or less.)

19. MATURITY GROUP:

☐ 8 1 = 00 2 = 0 3 = I 4 = II 5 = III
6 = IV 7 = V 8 = VI 9 = VII 10 = VIII

20. SIZE OF 10 DAY OLD SEEDLING GROWN UNDER CONSTANT LIGHT (Growth Chamber) AT 25° C. (Place a zero in first box (e.g. ☐ 0 ☐ 2) when size is 9 mm. or less.)

No data available

☐ MM. LENGTH OF SEEDLING

☐ MM. LENGTH OF COTYLEDON

☐ MM. WIDTH OF COTYLEDON

21. DISEASE: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

☐ 2 BACTERIAL PUSTULE ☐ 2 SOYBEAN CYST R₃ ☐ 2 DOWNY MILDEW ☐ 0 PURPLE STAIN ☐ 0 POD AND STEM BLIGHT ☐ 1 ROOT KNOT
☐ 2 FROGEYE ☐ 0 STEM CANKER ☐ 2 PHYTO-PHTHORA ☐ 0 BROWN STEM ROT ☐ 0 TARGET SPOT ☐ 0 BROWN SPOT
☐ 0 BUD BLIGHT ☐ 2 WILDFIRE ☐ 0 RHIZOCTONIA ROT ☐ 2 OTHER (Specify) Res. phytophthora rot, races 1, 3, 4, 7.

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

| CHARACTER | NAME OF VARIETY | CHARACTER | NAME OF VARIETY |
|--------------|-----------------|-----------------------|-----------------|
| Plant shape | | Petiole angle | |
| Leaf shape | | Seed size | |
| Leaf color | | Seed shape | |
| Leaf surface | | Seedling pigmentation | |

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY:

| Planted VARIETY 5/30/80 & 6/13/81 Stuttgart ^{Submitted} Hartz 930 4H78-B307 | NO. OF DAYS TO MATURITY | LODGING SCORE | PLANT HEIGHT cm | LEAF SIZE | | CONTENT | | AVERAGE NO. OF PODS PER PLANT | IODINE NO. |
|---|----------------------------|------------------|-----------------------|-----------|--------|---------|-------|-------------------------------------|------------|
| | | | | Width | Length | Protein | Oil | | |
| Name of similar variety Hartz 936X | 132 | 2.1 | 91 | | | 41.7 | 19.3% | | |
| | 140 | 3.0 | 96 | | | 40.4 | 19.0 | | |

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for completing this form:

1. Scott, Walter O. and Samuel R. Aldrich, 1970, Modern Soybean Production, The Farmer Quarterly.
2. Norman, A. G., 1963, The Soybean: Genetics, Breeding, Physiology, Nutrition, Management.
3. McKie, J. W., and K. L. Anderson, 1970, The Soybean Book.

LEAF COLOR: Nickerson's or any recognized color fan may be used to determine the leaf color of the described variety. The following Soybean varieties may be used as a guide to identify the colors listed on the form.

| COLOR | VARIETY |
|--------------|----------|
| Light Green | "Ada" |
| Medium Green | "Wilkin" |
| Dark Green | "Swift" |

LEAF SIZE: The following varieties may be used as a guide to identify the relative size leaves.

| SIZE | VARIETY |
|--------|---------|
| Small | "Amsoy" |
| Medium | "Bonus" |
| Large | "Anoka" |

PLANT TYPE: The following varieties may be used as a guide to identify the plant type.

| TYPE | VARIETY |
|--------------|------------|
| Slender | "Vansoy" |
| Intermediate | "Wirth" |
| Bushy | "Adelphia" |

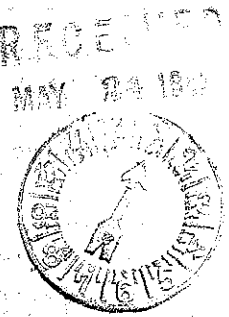


EXHIBIT D

BASIS OF APPLICANT'S OWNERSHIP

Jacob Hartz Seed Company, Incorporated, Stuttgart, Arkansas, established a plant breeding program in 1972 for the purpose of developing, releasing, and maintaining stocks of soybean varieties developed by its plant breeding program.

Dr. Curtis Williams, plant breeder, was licensed to breed soybeans by the Arkansas State Plant Board, December 9, 1977. Dr. Williams and co-workers developed and tested this variety in trials at Stuttgart, Arkansas.

EXHIBIT D

Table 1. Agronomic and other distinguishing characteristics (2-year average at Stuttgart, planted 5-30-80 and 6-13-81).

| Trait | ¹ / _{HARTZ 930} ¹ R ₅ H78-B30 | Davis | Hartz 936X | Pickett 71 |
|--|--|-------|---------------|------------|
| Seed Size (g/100) | 10.4 | 16.8 | 11.2 | 15.6 |
| Maturity date (day in October) | 16 | 20 | 23 | 26 |
| Plant height (centimeters) | 91 | 101 | 96 | 87 |
| (inches) | 36 | 40 | 38 | 34 |
| Flowering date (day in August) | 2 | 6 | 6 | 6 |
| Flower color | White | White | White | Purple |
| Pubescence color | Gray | Gray | Gray | Gray |
| Pod wall color | Tan | Tan | Tan | Tan |
| Hilum color | Buff | Buff | Buff | Imp. Black |
| Phytophthora root rot ^{1/} (race 3) | Res. | Res. | Res. | Res. |
| Cyst nematode (race 3) | Res. | Sus. | Sus. | Res. |

^{1/} ¹/_{HARTZ 930} has genes Rps₁^c Rps₃ which gives resistance to races 1-9; Davis apparently has the gene Rps₂ giving resistance to race 2; Pickett 71 has the gene Rps₁^c giving resistance to races 1, 2, 3, 6, 7, 8, 9; and Hartz 936X has the genes Rps₁^c Rps₁^c Rps₃--, since it segregates for race 7.

EXHIBIT D

Table 2. Comparison of maturity dates of ^{HARTZ 930' Rfs} H78-B30 and Hartz 936X soybeans when planted at Stuttgart, Arkansas.

| Variety | 1979 ^{1/} | 1981 ^{2/} | 1981 ^{3/} | \bar{x} |
|--|--------------------|--------------------|--------------------|-----------|
| ^{HARTZ 930'} H78-B30 | 10-12 | 10-15 | 10-13 | 10-13 |
| Hartz 936X | 10-17 | 10-24 | 10-24 | 10-22 |
| ^{1/} Planted 6-8-79 ^{2/} Planted 6-13-81 ^{3/} Planted 6-23-81 | | | | |